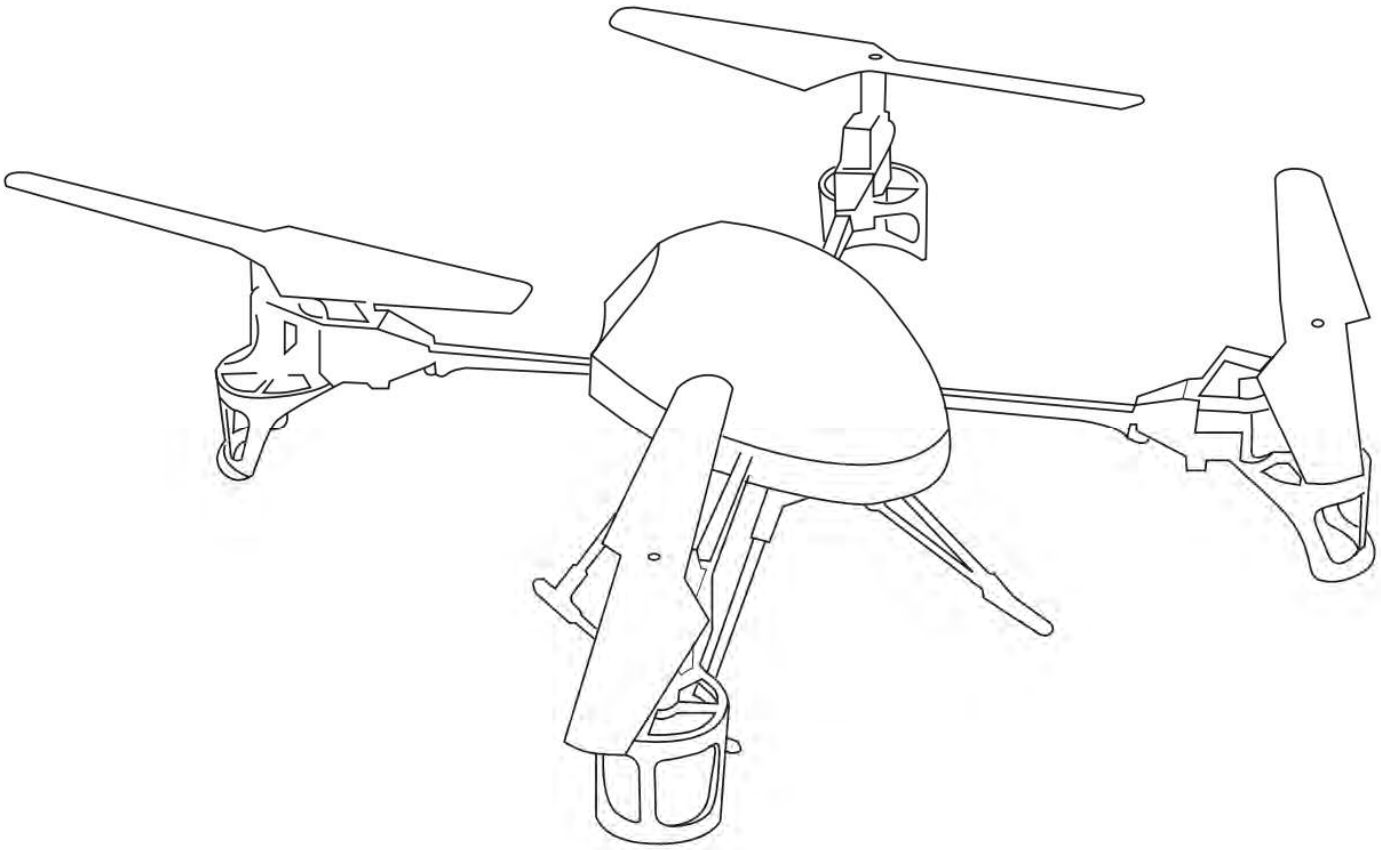
draganfly™

INNOVATIONS INC

Lil’ Draganflyer Plus



Instruction Manual

Precautions

Install the canopy with the nose pointing between the two red rotors.
Hold helicopter by center/canopy when removing or installing the battery.

Do not pull on the helicopter arms.
If a motor pod pulls off of an arm contact us for instructions.
Do not push the motor pod back on or it will break the wires internally.

Use caution when operating this product.
Fly only in safe areas away from other people.
Do not fly near electrical lines, near obstacles, or in bad weather.

Do not dismantle or modify.
This product is intended for users age 15 or older.
Keep out of reach of children.

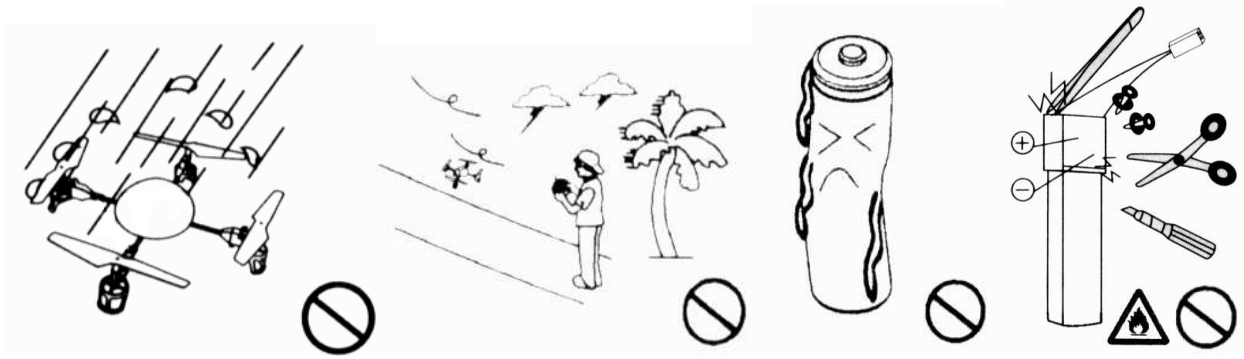
Do not short, reverse polarity, or puncture the battery.
Do not crush, disassemble, or burn the battery.
Prevent metallic objects from coming into contact with the battery.

Only charge the helicopter battery with the included charger.
Do not leave the battery unattended while charging.
Stop the charging process if the battery becomes hot or swells.

Disconnect the helicopter battery when not in use.
Always disconnect the helicopter battery before you turn off your controller.
Dispose of exhausted or damaged batteries in accordance with local laws and ordinances.

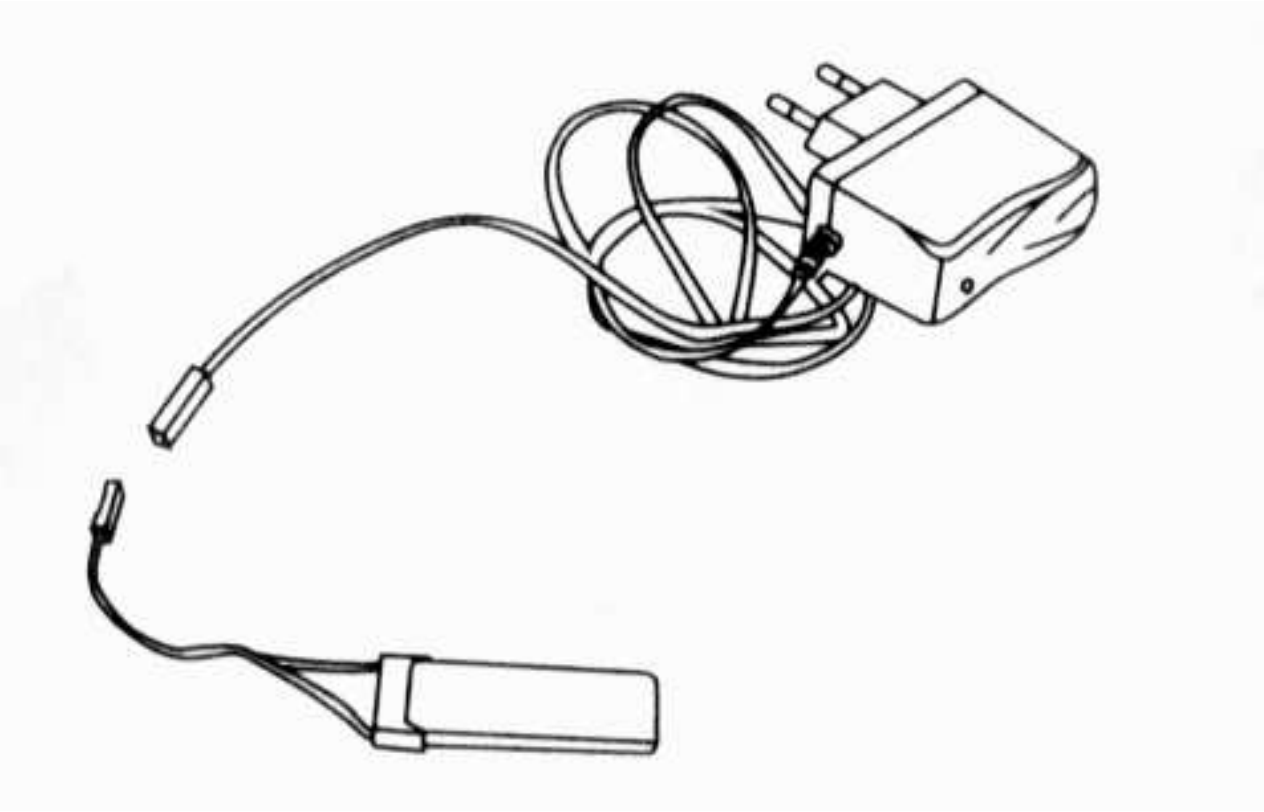
Make sure that the controller batteries are installed with the correct orientation.
Do not mix batteries of different chemistry, age, or remaining capacity.
Remove controller batteries when the product will not be used for extended periods.

Do not allow the product to come into contact with water or moisture.
Keep product away from heat, open flame, or extreme cold.
The manufacturer assumes no liability for damages caused by improper use.



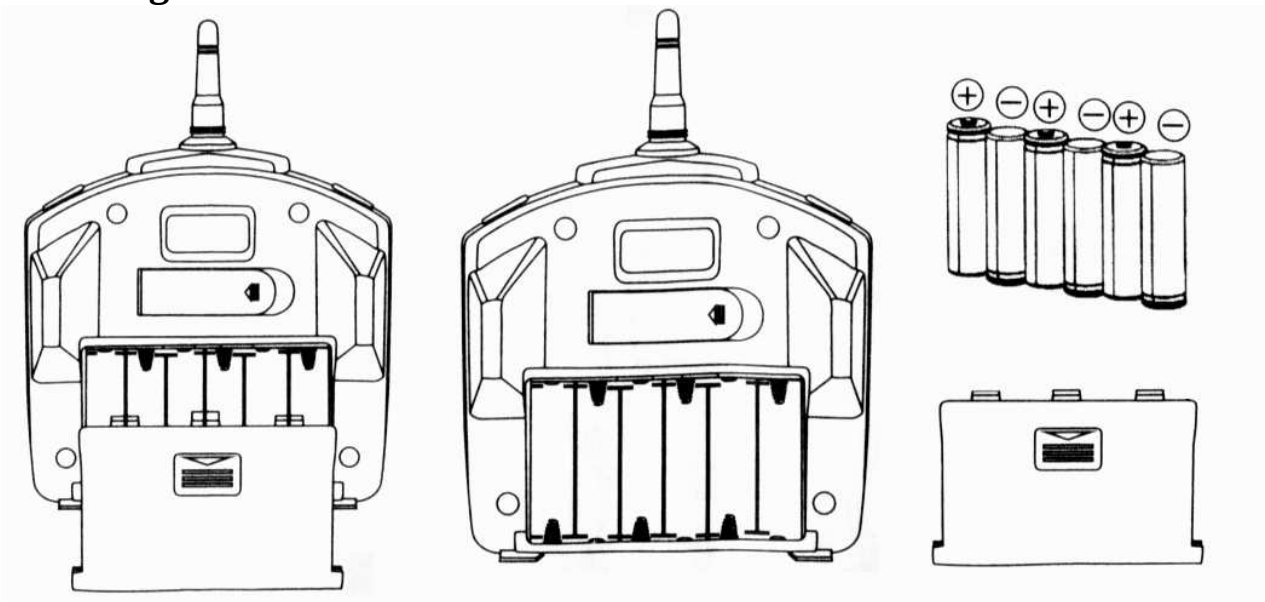
Charging the Helicopter Battery

Connect the battery to the included charger and fully charge the battery before each use.
The LED on the charger will be red while charging and green when finished.
Charge time is 45 to 60 minutes.



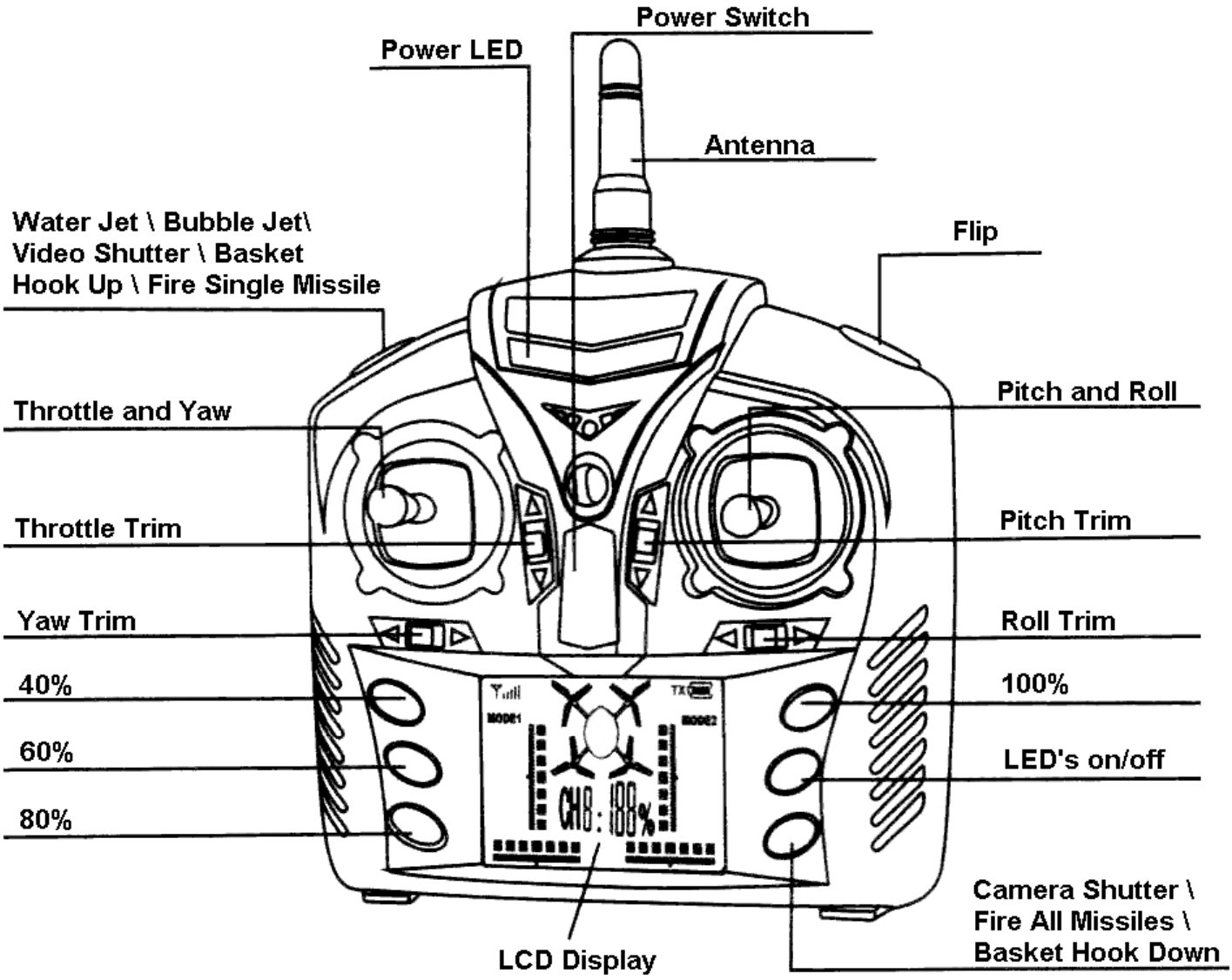
Helicopter Battery: Lithium Polymer 3.7V 500mAh (included)
Flight time: 10 minutes

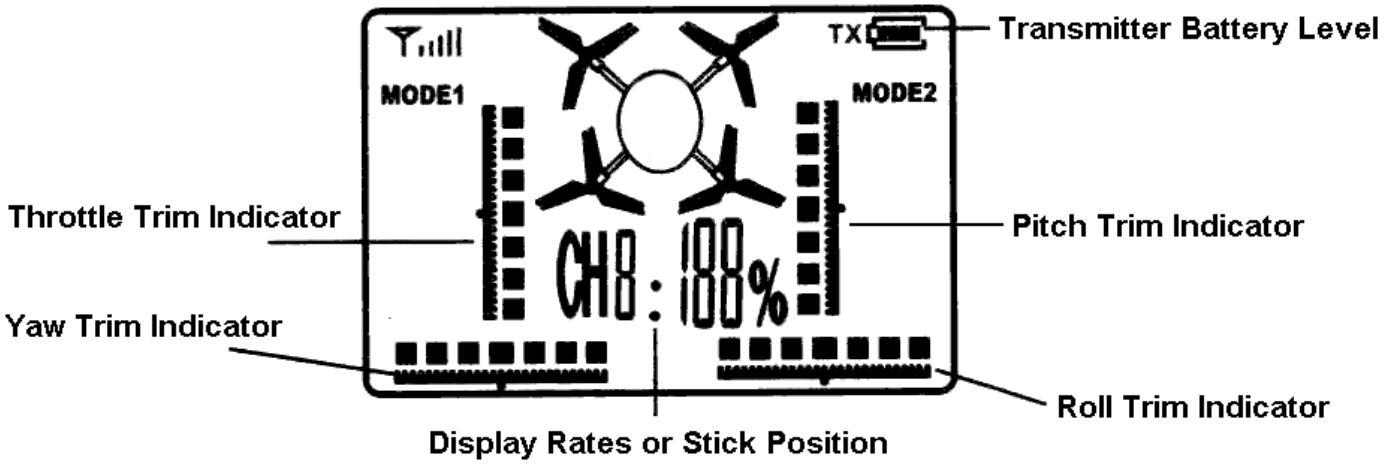
Installing Batteries in the Controller



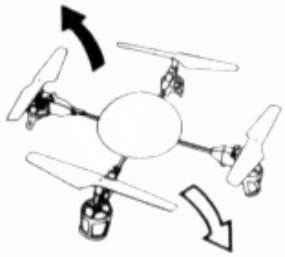
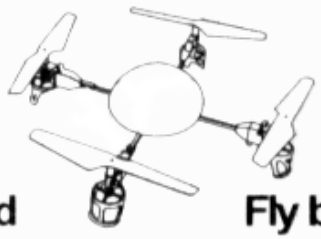
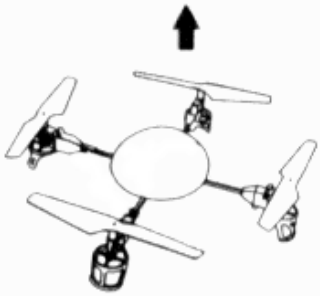
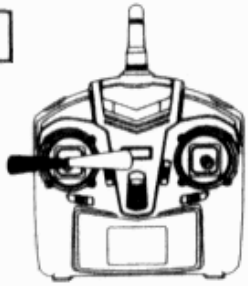
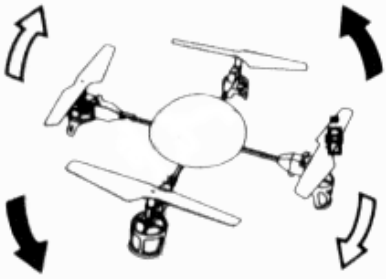
Controller Battery: 6 AA 1.5V (not included)

Controller Features





Controlling your Lil’ Draganflyer Plus

Mode	Illustration
Roll	 Move left Move right
Pitch	 Fly forward Fly backward
Throttle	 Ascent Descent
Yaw 	 Turn left Turn right

Rates

Your controller will start up with the control rate set to 40%.
This means that full stick movement is mapped to 40% helicopter response.

The rate value will change immediately when any of the rate buttons are pressed.
Available rate values are 40%, 60%, 80%, and 100%.

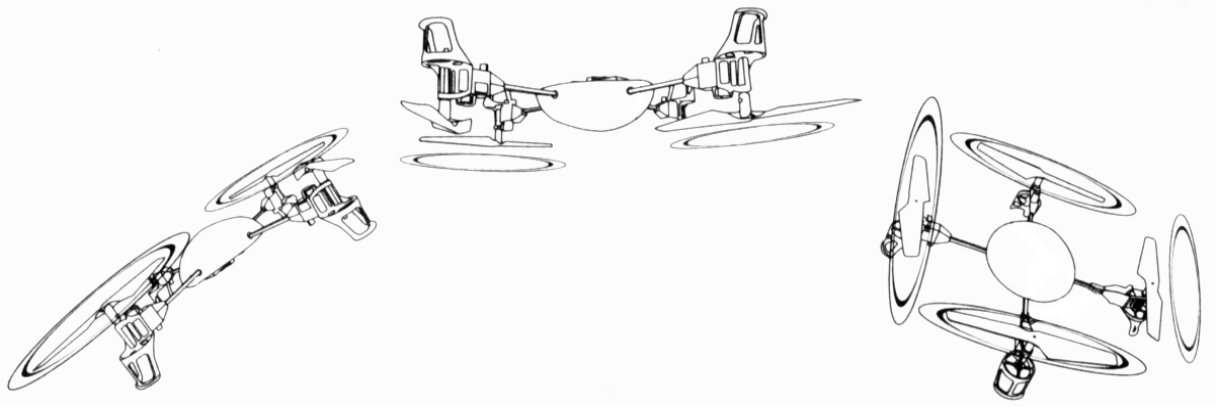
The recommended rate values for normal flight are 60% and 80%.
Press the button for the rate you wish to use each time you turn on your controller.

40% is for very slow control response and maximum smoothness when filming video.
60% is for moderately slow control response.
80% is for normal control response and maneuvering.
100% is for high maneuverability and flying against wind.

Flips

You must first select the 100% rate mode before you can enable flips.
Then press and hold the flip enable button on the upper right of the controller.
Now push the pitch or roll control in any direction while continuing to hold the flip enable button. The helicopter will flip in the direction you push the stick.

The controller will beep continuously to alert you while flip mode is enabled.
Only flip when the helicopter is high enough, because it will drop somewhat during the flip.

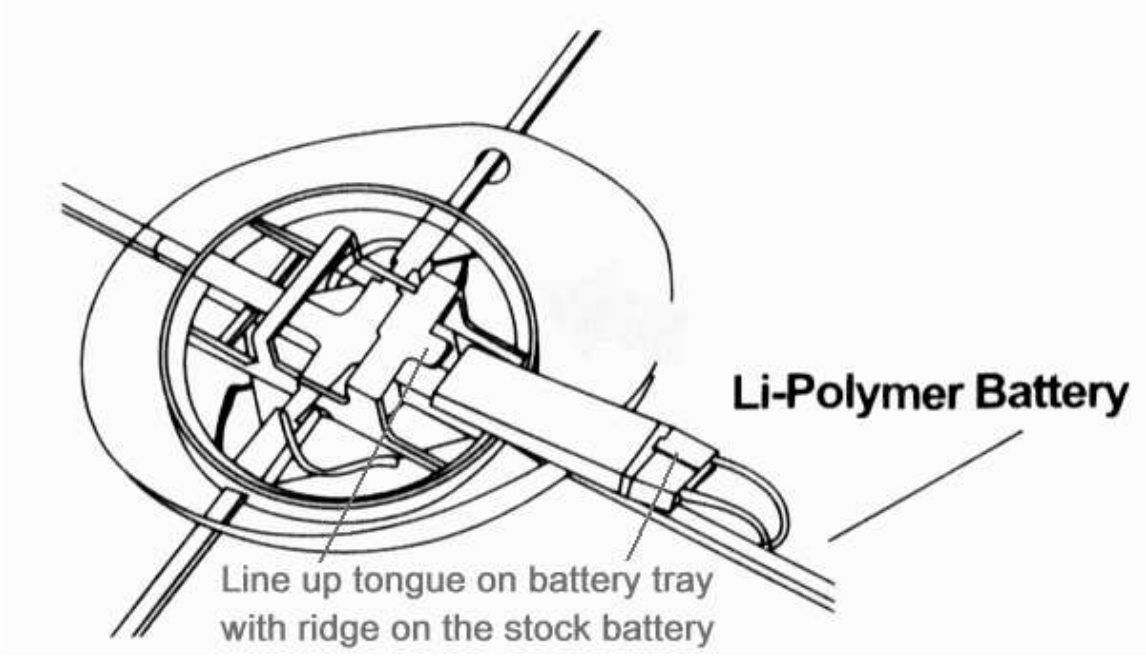


Trims

If the helicopter drifts while hovering, use the trim controls to compensate.
Push the trim tabs in the same direction that you would push the control sticks to cancel the drift.

If the helicopter drifts excessively, it is possible the gyro calibration was thrown off by movement when it was powered on. Unplug the helicopter battery and turn off the controller, then follow the steps on the next page.

Steps to Follow Each Time You Use Your Helicopter



Step 1:
Slide the battery into the battery tray on the bottom of the helicopter as shown.
Push the battery into the tray further until it is centered in the middle of the helicopter.
With the battery *not* connected, place the helicopter upside down on a stationary surface.

Step 2:
Move the throttle stick to the lowest position.
Plug in the helicopter battery while keeping the helicopter stationary and upside down.
Within less than three seconds, turn on the controller.
The helicopter needs to remain stationary for a few seconds after the battery is connected while the gyros calibrate.
Make sure you do not move the helicopter during this process.

Step 3:
Once the controller stops beeping, the helicopter is ready to fly.
It is now ok to move the helicopter.
Place the helicopter right side up in front of you.
Point the nose of the helicopter in the direction you will be facing.
Press the rate button for 60% rate (recommended), or the rate you prefer.
Move the throttle stick up until the rotors begin to spin.
If the helicopter does not respond to the controller, unplug the helicopter battery, turn off the controller, and then start again from step 1.

Step 4:
When done, disconnect the helicopter battery before turning off the controller.

Step 5:
Turn off the controller last.
If it will not be used again soon, remove the batteries from the controller for storage.

Flight Training

Exercise #1 - Hover:
Set your helicopter on the floor in the center of your practice area and slowly increase the throttle to around 50%. The helicopter should take off and start rising. Back off on the throttle a small amount and try to maintain a hover. If required use the trim tabs for roll, pitch and yaw to try to keep the helicopter hovering in one spot. When setting the trims make only small adjustments then see how the helicopter reacts to the adjustment. Don't use any of the other flight controls unless the helicopter starts to drift. Hold the helicopter in a steady hover for a few minutes, then slowly decrease the throttle and allow it to settle to the ground.

Exercise #2 - Roll:
Once you are confident hovering in one place, you can try moving the helicopter around. Begin by hovering above a fixed spot, and then gently push the right transmitter stick to the left. This will cause the helicopter to tilt slightly and begin moving left. As long as you apply inputs the helicopter will continue moving in the direction you are pushing the stick. Return the joystick to center; this should cause the helicopter to again be level and the helicopter should coast to a halt. Now move the joystick to the right and practice returning to where you started from.

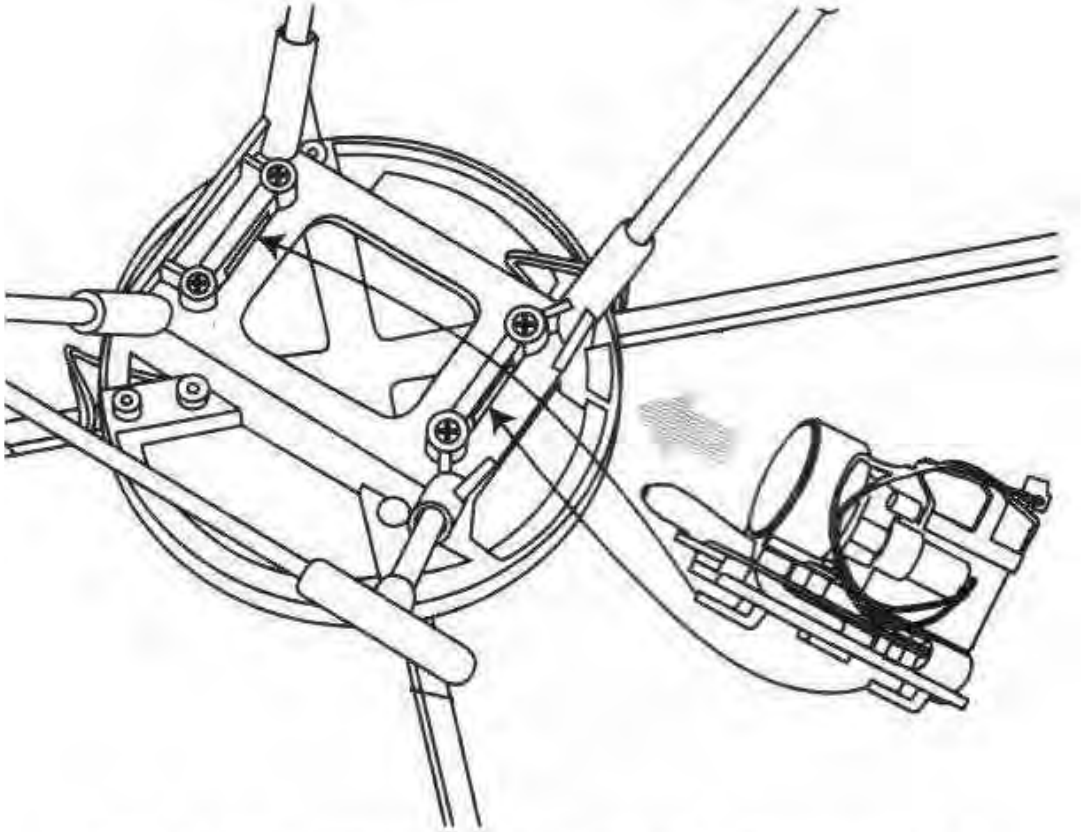
Exercise #3 - Pitch:
Start in a hover like before, and push the right transmitter stick forward slightly. This will cause the helicopter's nose to drop, and the helicopter will start to travel forward. To eliminate forward movement re-centre the right joystick, this will cause forward motion to cease once any momentum is depleted. If you move the joystick back past centre it will cause the helicopter to fly backward. Practice moving back and forth to become familiar with the pitch control.

Exercise #4 - Pitch & Roll:
Set up markers on the ground in the shape of a square. Practice moving to each point and establish hover, then return to the center and establish hover before moving on to the next point in the cross pattern. Practice moving from the center directly to each corner, and then back to the center.

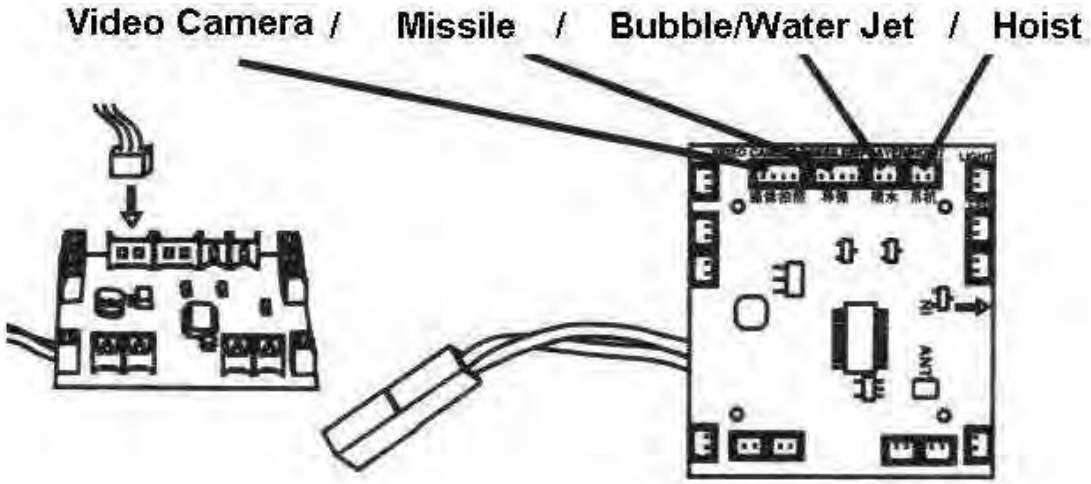
Exercise #5 - Yaw:
Your helicopter can rotate, pointing the nose in a new direction. Control yaw (rotational motion) by nudging the left transmitter stick left or right. Practice flying around the perimeter of a square keeping the nose pointing in these positions: left, right, towards you, and away from you.

When you feel confident using all of the controls, practice flying it to any desired location and land there. Continue to practice until you have mastered all of the exercises and your control of the helicopter feels natural and instinctive.

Installing Optional Payload Accessories

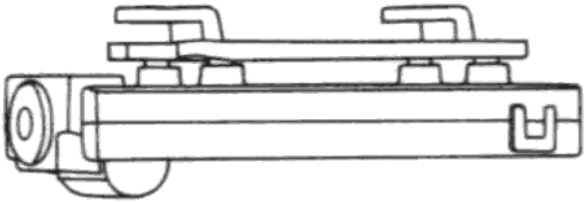


Turn the helicopter upside down and place on a flat surface. Line up the indicated clips on the payload with the tabs on the landing gear and press forwards until you hear a click.

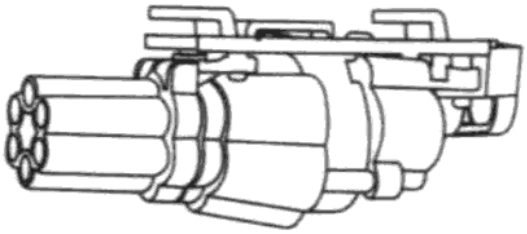


Receiver board is shown in this picture; when you want to change the optional payload, remove the canopy, unplug the current payload and plug in the new one in the labeled slot

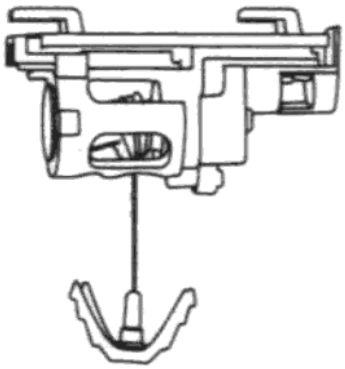
Optional Payload Accessory List



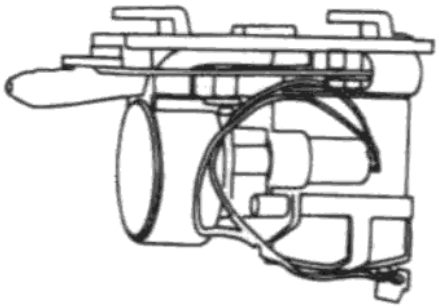
Camera Accessory
640x480 60fps, video & still image
LIL-DRAGANFLYER-PLUS-CAMERA
$29.95



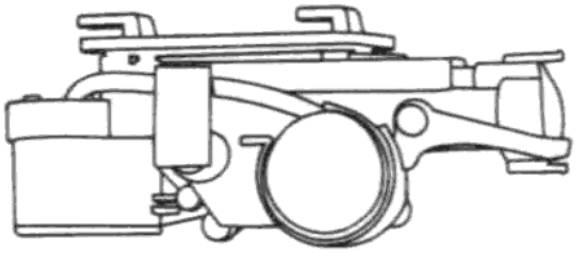
Missile Accessory
6 missile capacity, single & rapid fire
LIL-DRAGANFLYER-PLUS-MISSILE
$19.95



Hook & Basket Accessory
Raises and lowers, lifts basket
LIL-DRAGANFLYER-PLUS-HOOK
$19.95



Water Cannon Accessory
Shoots a stream of water
LIL-DRAGANFLYER-PLUS-WATER
$19.95



Bubble Blower Accessory
Blows a stream of bubbles
LIL-DRAGANFLYER-PLUS-BUBBLE
$19.95

Spare Parts

Spare 600mAh battery	LIL-DRAGANFLYER-BATT	$14.95
Replacement rotor set	LIL-DRAGANFLYER-PLUS-ROTORS	$14.95
Replacement canopy	LIL-DRAGANFLYER-CANOPY	$14.95
Spare plastic missiles	LIL-DRAGANFLYER-PLUS-MISSILE-SPARES	$9.95

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draganFLY™
INNOVATIONS INC

Troubleshooting

Problem: One or two motors not spinning, or spinning too slowly
Cause: Helicopter needs to lift off of ground before all motors are commanded to spin
Solution: Increase throttle until helicopter lifts off the ground

Problem: Helicopter will not fly level once it is in the air
Cause: Trims need adjusting, or a bent rotor blade needs replacing
Solution: Inspect and replace any bent or damaged rotor blades
Zero the trims (adjust them until the trim indicators on each stick are centered)
Then while flying the helicopter push the trim tabs in the same direction that you would push the control sticks until the drift is canceled

Problem: Helicopter will not fly level, even after adjusting trims and replacing bent rotors
Cause: Helicopter was not perfectly stationary after the battery was plugged in
Solution: Unplug helicopter battery & turn controller off, repeat steps 1-5 from page 7

Problem: Helicopter mainboard LED blinks continuously and no response to control input
Cause: Helicopter did not bind with controller
Solution: Unplug helicopter battery & turn controller off, repeat steps 1-5 from page 7

Problem: Helicopter does not power up and mainboard LED does not light
Cause: Battery is empty or not fully connected
Solution: Charge battery and reconnect battery plug firmly

Problem: No LED on controller after it is switched on
Cause: Batteries are depleted or have bad contact
Solution: Replace all six AA batteries with fresh ones and verify battery orientation

Problem: Helicopter does not lift or rotors stop turning
Cause: Battery is empty
Solution: Recharge battery

Problem: Rotors continue to spin after landing
Cause: Throttle trim is too high
Solution: Decrease throttle trim

Problem: Helicopter vibrates strongly or will not fly with fully charged battery
Cause: Rotors are damaged or installed in the wrong locations
Solution: Replace rotors, ensuring that the front-right rotor is a red type 'A', the rear-left rotor is a black type 'A', the front-left rotor is a red type 'B', and the rear-right rotor is a black type 'B' (the letters ‘A’ or ‘B’ are imprinted on the underside of each rotor near the shaft)